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Customer No.: 31561
Application No.: 10/708,428
Docket No.: 12539-US-PA

To the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Claim 1. (currently amended) A quadrature modulator, comprising:

a base band transconductance, for converting a voltage signal into a current signal;

a switching pair for modulating the current signal;

a current sink, coupled between the ~~base band transconductance and output~~ and the input of the base band transconductance, for detecting a current offset of the current signal, wherein when the current sink is enabled to detect the current offset of a transmitter within a predetermined time interval, the switching pair is disabled, and after the predetermined time interval lapses, the current sink is disabled and the switching pair is enabled; and

an offset compensation module, including a current-to-voltage converter coupled to the current sink module, a direct current (DC) offset minimum loop being coupled to the current-to-voltage converter for compensating a voltage offset within the predetermined time interval.

Claim 2. (currently amended) A transmitter, comprising:

a digital-to-analog converter module, for receiving voltage signals;

a base band filter module, coupled to the digital-to-analog converter module;

a quadrature module coupled to the base band filter module, for converting filtered voltage signals into current signals and then modulating the current signals;

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a current sink module, coupled to the quadrature module and enabled for intercepting the current signals to detect a current offset before the current signals are modulated;

an offset compensation module, coupled between the current sink module and one of the digital-to-analog converter module, the base band filter module and the quadrature module, for compensating the current offset when the current sink module is enabled, wherein the offset compensation module comprises a current-to-voltage converter coupled to the current sink module, and a direct current (DC) offset minimum loop coupled to the current-to-voltage converter for compensating a voltage offset within a predetermined time interval; and

a radio frequency amplifier, coupled to the quadrature module, for amplifying the modulated current signals and then transmitting amplified signals to an antenna;

wherein the quadrature module further comprises a base band transconductance and a switching pair, and the current sink module is arranged therebetween; when the current sink module is enabled within ~~[[a]]~~the predetermined time interval, and the switching pair is enabled after the predetermined time interval lapses.

Claim 3. (currently amended) The transmitter of claim 2, wherein when the current sink module is enabled, the switching pair is disabled.

Claim 4. (cancelled)

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Claim 5. (currently amended) The transmitter of claim 2, wherein the offset compensation module is coupled between the current sink module and one of the digital-to-analog converter module, the base band filter module and the base band transconductance.

Claims 6-7. (canceled)

Claim 8. (currently amended) The transmitter of claim ~~[[7]]~~2, wherein the DC offset minimum loop is further coupled to ~~one~~ of the digital-to-analog converter module, the base band filter module and the base band transconductance.

Claim 9. (currently amended) A method for detecting and compensating a current offset for a transmitter, the transmitter having a quadrature modulator including a base band transconductance stage, a switching pair ~~[[and]]~~, a current sink, and an offset compensation module arranged therebetween, wherein, the offset compensation module includes a current-to-voltage converter coupled to the current sink, and a direct current (DC) offset minimum loop is coupled to the current-to-voltage converter for compensating a voltage offset within the predetermined time interval, and the method comprising comprises:

enabling the transmitter;

turning on the current sink and turning off the switching pair for a predetermined time interval;

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compensating the current offset within the predetermined time interval; and
turning off the current sink and turning on the switching pair after the predetermined time interval lapses.

Claim 10. (currently amended) A method for detecting and compensating a current offset for a transmitter, comprising:

enabling the transmitter;
receiving voltage signals and converting the voltage signals into current signals;
intercepting a current offset of the current signals before the current signals are modulated and transmitted; and
compensating the current offset within a predetermined time interval by a direct current (DC) offset minimum loop, the DC offset minimum loop receives the current signals for compensating voltage offsets within the predetermined time interval.